NASA SBIR/STTR Technologies

A2.01-9845 - FACET as a Collaborative, Open Source UAS Research Platform

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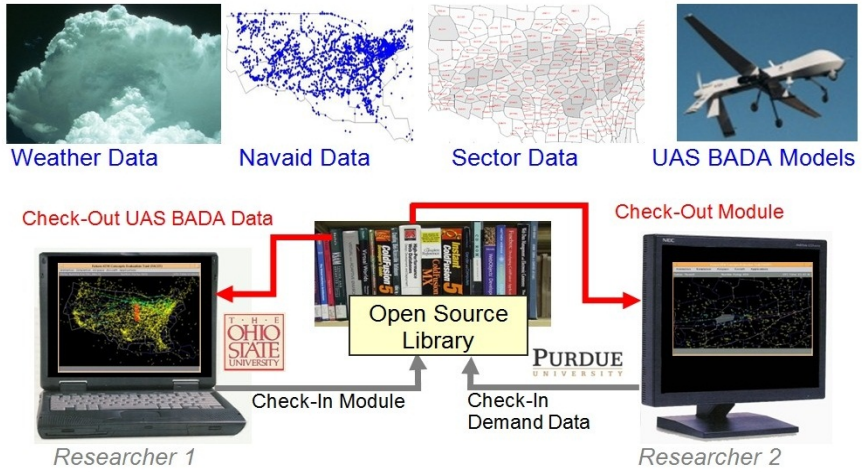
Identification and Significance of Innovation

We build a Open Source System (OSS) that accelerates Research and Development (R&D) aimed at introducing Unmanned Aircraft Systems (UAS) into the National Airspace System (NAS). In this effort, FACET (NASA's Future Air Traffic Management Concepts Evaluation Tool) will form the basis of a collaborative R&D platform, an environment where users share OSS modules (software and data sets developed to reside outside the FACET Application Programmers Interface (API)) between users at the same or different work locations, so that each user can benefit from the OSS software and data contributions of others. When a user enters into a collaborative study of UAS integration in the NAS, he/she is able to download OSS software, documentation, and data to accelerate R&D and explore a wide variety of designs in the trade space.



FACET as a Collaborative, Open Source UAS R&D Platform

Estimated TRL at beginning and end of contract: (Begin: 2 End: 4)

Technical Objectives and Work Plan

Technical Objectives: 1) establish an OSS system, 2) populate the OSS with models, data, scenarios, etc. 3) demonstrate FACET-based simulations that explore the trade space of options for introducing UAS into the NAS.

Work Plan: 1) specify OSS design, 2) specify modules that are required to solve the problem of UAS integration into the NAS, 3) build and test models, 4) execute FACET simulations with components downloaded from the OSS, 5) complete proof of concept for benefits of OSS, 6) document work.

NASA Applications

NASA Integrated Systems Research Program (ISRP) can more quickly explore the trade space of options for integration of UAS into the NAS using our OSS collaboration system. Using our OSS system, a large quantity of R&D efforts can proceed in parallel and leverage each of the models and inputs from one another to explore more elements within the trade space of options.

Non-NASA Applications

JPDO, FAA, and industry applications of the OSS to study the introduction of UAS into the NAS and the potential safety and feasibility aspects . Airlines are interested in determining the extent UAS in the NAS will affect their operations, and how they should respond. FAA still needs to establish policy on UAS, and fast-time simulations can assist in impact assessments.

Firm Contacts

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